INTEGRATED RESOURCE PLAN (IRP)

Date:

6-5-2008

IRPs shall consider all reasonable opportunities to meet future energy resource requirements using Demand Side Management techniques, new renewable resources and other programs that will provide retail consumers with electricity at the lowest possible costs, and minimize, to the extent practicable, adverse environmental effects.

To meet your Integrated Resource Planning reporting requirement, complete the following. Unaddressed items will be deemed incomplete and not eligible for approval. Western reserves the right to require customers to provide any supporting back-up data used to support and develop this report.

Customer Contact Information:

(Provide contact information for your organization. Contact person should be able to answer questions concerning the plan)

Customer Name:	Power and Water Resources Pooling Authority (PWRPA)					
Address:	P.O. Box 299, Tracy, CA 95378					
Contact Person:	Kent Palmerton, GM of PWRPA;					
	Stuart Robertson, Robertson-Bryan, Inc. (RBI)					
	Cori Pritchard, Robertson-Bryan, Inc. (RBI)					
Title:	Kent Palmerton, General Manager of PWRPA					
	Stuart Robertson, PE, President of RBI					
	Cori Pritchard, Operations Analyst, RBI					
Phone Number:	Kent Palmerton, 916-483-5368					
	Stuart Robertson, 916-687-7799					
	Cori Pritchard, 916-405-8923					
E-Mail Address:	Kent Palmerton, kent@wkpalmerton.com					
•	Stuart Robertson, <u>stuart@robertson-bryan.com</u>					
	Cori Pritchard, cori@robertson-bryan.com					
Website:	www.pwrpa.org					

Type of Customer:

X	Municipal – 2 member districts
	State
	Federal
X	Irrigation District - 8 member districts
Х	Water District - 4 member districts
	Other (Specify)

Capacity and Energy Data for Previous 5 Years: (Provide peak demand and total energy for past 5 years.)

District	2003 kWh	2004 kWh	2005 kWh	2006 kWh	2007 kWh
Arvin-Edison WSD	111,376,858	154,494,062	98,071,983	99,552,770	170,485,749
Banta-Carbona ID	11,425,582	12,046,560	10,804,037	9,783,252	12,953,530
Byron-Bethany ID	2,851,669	2,635,762	2,542,663	2,250,808	3,292,044
Cawelo WD	27,899,877	25,487,661	29,804,652	36,140,869	22,805,336
Glenn-Colusa ID	9,407,367	9,950,754	9,884,037	10,847,837	12,470,271
James ID	3,460,031	3,714,067	2,115,487	1,768,755	3,405,138
Lower Tule River ID	4,017,801	2,912,214	10,648,978	10,728,942	1,752,705
Provident/Princeton ID	4,548,222	4,708,338	4,231,859	4,106,925	4,938,545
Reclamation District 108	5,576,593	5,491,324	4,818,984	5,059,659	3,821,505
Santa Clara Valley WD	15,311,580	13,420,038	14,742,612	15,167,482	18,982,003
Sonoma County WA	81,819,542	66,596,693	60,672,944	56,704,113	49,982,003
The West Side ID	4,492,091	4,621,729	3,869,962	3,986,134	5,599,740
West Stanislaus ID	9,528,378	13,037,759	8,001,822	8,323,134	13,101,408
Westlands WD	104,641,748	113,274,005	39,752,612	14,464,527	116,017,444
PWRPA	396,357,339	432,390,966	299,962,632	278,885,207	439,607,421

^{*}A Meter Data Management system was established in 2005 called SAMBA to track kWh and kW for each hour in the

District	2005 kW	2006 kW	2007 kW
Arvin-Edison WSD	23,966	25,703	32,227
Banta-Carbona ID	3,495	3,581	3,512
Byron-Bethany ID	1, 4 99	1,185	1,223
Cawelo WD	8,549	12,582	14,420
Glenn-Colusa ID	3,111	3,600	3,600
James ID	1,012	1,145	1,026
Lower Tule River ID	2,242	2,379	1,741
Provident/Princeton	1,764	1,636	1,598
Reclamation District 108	4,753	2,405	2,931
Santa Clara Valley WD	4,018	3,829	9,928
Sonoma County WA .	12,505	13,519	11,600
The West Side ID	1,507	1,579	1,726
West Stanislaus ID	3,927	3,402	4,715
Westlands WD	18,783	6,065	32,393
PWRPA	71,208	61,809	96,916
Coincidence Peak			

^{*} Prior to 2005, information was less reliable to track the peak kW, therefore, we are showing the peak kW for 2005 and onward.

Identification of Resource Options (considerations that may be used to develop potential options include cost, market potential, consumer preferences, environmental impacts, demand or energy impacts, implementation issues, revenue impacts, and commercial availability):

Supply-side options:

(Including, but not limited to: purchase power contracts and conventional and renewable generation)

luding, but not limited to: purchase power contracts and conventional and renewable generation)	
List existing supply-side List future supply-side resou	rce
options: options considered and	
evaluated:	
PWRPA Base Resource allocation from Base Resource allocation from	
WAPA WAPA	
Options and Fixed Power Purchase Options and Fixed Power Purchase	e
contracts in compliance with contracts in compliance with PWR	PA
PWRPA Risk Policy, with market Risk Policy, with market suppliers	
suppliers including including	
BP Energy BP Energy	
Constellation Constellation	
PowerEx PowerEx	
Sempra Sempra	
Shell-Coral Shell-Coral	
Turlock Irrigation District Turlock Irrigation District	
Real time, Day Ahead and Odd Lot Real time, Day Ahead and Odd Lot	t
Purchase and Sales contracts with Purchase and Sales contracts with	
market suppliers including market suppliers including	,
Constellation Constellation	
Shell-Coral Shell-Coral	
PowerEx PowerEx	
Sonoma County Landfill Gas Power Sonoma County Landfill Gas Power	ar
Contract Contract	,
Acquire 5 MW nominal share	
ownership in the Planned 250 MW	
Lodi Plant, to be completed in 201	
Survey of Solar development	
opportunities	
Investigation of New Landfill gas s	te.
rict Specific:	
Arvin Edison Conducting a survey of low head	
generation possibilities	ĺ
ilenn-Colusa Operations of drain water recapture Integrated Regional Water	
w/ 18 low lift pumping stations Management Planning	
averaging 75 HP each.	
Santa Clara District has a 200 kW solar system Active participation in developing	
Valley Risk management plan for PWRP	۱. ا
including the procurement of GHG	, ·
sensitive biogas power and	
development of a power purchase	
contract for power from the Lodi	-
Combined Cycle Energy Center	ĺ
which will be complete in 2010.	
Active participation to receive power	er
	er

Demand-side options:

Demand-side op	· · · · · · · · · · · · · · · · · · ·	Liet future demand side
	List existing demand-side options:	List future demand-side resource options considered and evaluated:
PWRPA	Demand-side management non- automated with only hourly benefits accruing to participants	Demand-curtailment bidding with forward capacity revenue to participants.
District Specific:		
Arvin Edison	Groundwater wells being completed	Consider a project to increase reverse flow capabilities
		Evaluate VFD's installation at as many pumping plants as is feasible within the next four years.
Cawelo	Pump testing performed on pumps showing energy usage out of previously recorded levels.	Replacement of Venturi flow meters with full throat magnetic flow meters.
Glenn-Colusa	Incentive credits to convert to drip or micro-spray jets	District Drain outflow measuring stations w/ SCADA systems linked to real time water balance adjustments and water savings.
	Install ITRC Flap-gates in existing weirs where applicable. The gates automatically control upstream water levels in conveyance channels and require no power to operate.	Lateral Turnouts w/ SCADA and computer control to reduce canal water levels fluctuations that cause flow fluctuations through field headgates.
James	Store water in a regulation basin	Store water in a regulation basin
	240 Acre groundwater recharge facility	240 Acre groundwater recharge facility
Santa Clara Valley	Green Business program Certification efforts to gain efficiency	Green Business program Certification continuation efforts to refine the processes and gain efficiencies during next certification period.
	Solar Installations	Solar Installations
		Plan and Implement Energy Efficiency projects.
Westlands	Drip/Micro Irrigation	Drip/Micro Irrigation
	Pump Efficiency Tests and Well Rehabilitations	Pump Efficiency Tests and Well Rehabilitations
	Interval Meters/Telemetry	Interval Meters/Telemetry

Resource options chosen: (Provide a narrative statement that describes the option chosen and clearly demonstrates that decisions were based on a reasonable analysis of the options)

PWRPA: The Power and Water Resource Pooling Authority (PWRPA) load forecast is the aggregation of its member district load forecasts for three year types: wet, average and dry. Dry year type Base Resource projection is applied against the load forecasts to determine the Net Short Position (NSP). This determination is up dated monthly through the October through June period to adapt to changing base Resource and demand projections.

PWRPA's Risk Policy Compliance stipulates that PWRPA purchases contracts with Market suppliers and ownership in generation plants to hedge 100 percent of its forecasted NSP for the upcoming four months, 80 percent for the following two months, 60 percent for the following three months, 50 percent for the following nine months and 30 percent for the following nine months.

PWRPA's generation portfolio includes a ten-year contract with Sonoma County Landfill Plant for 6 MW, due to be renewed in 2016, and an anticipated partial ownership in the Lodi cogeneration plant, which commissioning is expected in 2010. Furthermore, PWRPA is investigating distributed renewable generation, with two member districts having already installed a total of 1.2 MW capacity of photo-voltaic solar generation.

The member districts have taken steps to conserve power through various methods, including load-shifting, implementing energy-efficiency methods, engineering water conservations measures, and inspecting and replacing worn equipment.

District Specific:

- Arvin Edison: The District has begun a project to increase reverse flow capabilities in
 its South Canal, benefits form source-switching are yet to be determined. The District
 intends to evaluate and install VFD's in as many pumping plants as feasible. Existing
 on-canal balancing facilities have been expanded and additional sites are being
 considered. The District is also considering low head generation possibilities.
- Cawelo: The District's pump testing is an annual process that has been performed over the last 20 years. The information gathered is used to identify if the pumping units need maintenance. This maintenance consists of either adjustments to the pump assembly, impeller replacement or a full pumping unit replacement.
- Glenn-Colusa Irrigation District has been manufacturing the ITRC gates and has
 committed to install from 20 to 30 in the next three years. The District has adopted a
 water rate that incorporates a 15 % incentive credit for crops converted to drip/ microspray starting in the 2008 season. 3,816 Acres have been applied for at this incentive
 rate to date. Assuming a half Ac.Ft./ Ac. reduction in use (very conservative estimate),
 this action may save 1,908 Ac.Ft. of water that is equivalent to 21,560 kWh of avoided
 pumping.
- James Irrigation District developed a regulation basin where water can be stored on weekends and pumped out during weekdays when demand for water is needed. This enables the district to operate its well pumps when energy is less expensive. The District also recently completed a 240 acre groundwater recharge facility that allows the district to recharge surplus flows of flood water thus recharging the groundwater table and reducing energy required to pump groundwater.
- Santa Clara Valley Water district is in process of developing a written energy
 management plan that integrates its past successful practices, its Green business
 practices and the recently developed Public Purpose Program of the Power and Water
 Resources Pooling Authority (PWRPA –PPP). It is projected that one of PWRPA's PPP
 may be an energy audit of Santa Clara Valley Water District's operational practices.
- RD108 continues to improve system efficiency by automating much of its delivery system and has nearly completed the installation of 30 long-crested weirs to reduce system spill, which reduces excessive pumping and realizes better energy-efficiency. The District is also a sponsor of the Yolo County Resource Conservation District's "mobile lab," which performs field-distribution uniformity tests to help improve irrigation efficiency. In 2007, the District initiated a Pilot Water Conservation Program that effectively reduced system drainage by approximately 40,000 acre-feet. This program has been approved for implementation in 2008 and likely will continue beyond that time.

Westlands WD: Demand side options incorporate the District's efforts toward water
conservation including methods / policies to increase seasonal efficiency, distribution
uniformity and decreasing percolation. Additionally the District required biannual well
efficiency test and when justified well / pump / motor rehabilitation. Recently the District
completed an effort to install interval meters and telemetry at all PWRPA load sites

Action Plan:

Specific Action Items to be Implemented Over the Next 5 Years:

(Lists are not meant to be inclusive, complete and provide other action items as applicable)

Energy Consumption Improvements:

Energy Consumption			F-(1147	P-4 1380	Description of the second
Proposed Items	Begin Date	End Date	Est. kW capacity savings	Est. kWh savings per year	Descriptions/Evaluation Methods
Dollar Europa pir conditio	ning rotrofi	<u> </u>	per year		
Boiler, Furnace, air conditio			11-1	I I balan a com	T
Santa Clara Valley	2009	2011	Unknown	Unknown	
Weatherization, insulation					
storm windows/doors		r _			
Insulation of air ducts, boile			I to loo a com	I I la luca a com	T
Santa Clara Valley		2009	Unknown	Unknown	
Clock thermostats and equi	pment syst	em timers			
Heat pumps	1 0000	0045	I == 0	I	
Sonoma Valley	2008	2015	ТВА	ТВА	Begin Study; secure grant funding, develop detailed design of system, install systems. 90% savings on natural gas and 50% on electricity for heating and cooling systems.
Energy audits		•			
Santa Clara Valley	2009	2009	Unknown	Unknown	
Sonoma Valley	2008	Ongoing	Unknown	Unknown	Lower usage
Westlands	Ongoing	Ongoing	Unknown	Unknown	
Public education programs					
Sonoma Valley	2008	Ongoing	Unknown	Unknown	Lower demands
Loan arrangements or reba		for energy e	efficient equipm		
Sonoma Valley	2008	2015	Unknown	Unknown	Completion of alternative energy study
Use of infrared heat detection	on equipme				. '
Cawelo	July 2008	July 2008	0	0	Used annually for preventive maintenance
Santa Clara Valley	2008	2010	Unknown	Unknown	
Energy efficient lighting					
Santa Clara Valley	2008	2009	Unknown	Unknown	
Sonoma Valley	2006	Ongoing	Unknown	50,000	Install efficient lamps and ballasts in open office space by 12/31/08
Equipment inspection progr	ams				
Arvin Edison	Ongoing	Ongoing	n/a	n/a	Regular yearly testing/maintenance
Byron-Bethany	2008	2013	n/a	n/a	
Santa Clara Valley	2008	2009	n/a	n/a	
Sonoma Valley		Ongoing	n/a	n/a	Inspect equipment on a

					regular basis to maintain efficiency
The West Side	2008	2008	n/a	n/a	Pump Testing
Reclamation 108	Ongoing	Ongoing	n/a	n/a	Regular Maintenance
Electric motor replacements					
Byron-Bethany	2008	2013	n/a	n/a	
Sonoma Valley	2008	Ongoing			Replace old motors with premium motors as
					required
The West Side	12/2007	2/2008	n/a	n/a	Check balance on #7 pump
Westlands	Ongoing	Ongoing	n/a	n/a	
Upgrading of distribution lin					
Byron-Bethany	2009	2011	Unknown	Unknown	
Glenn-Colusa	April	April	Unknown	Unknown	Annual New Substation
Davies factor improvement	2007	2047			Inspections
Power factor improvement	2000	2040	I halen arren	Halmann	NI/A
Byron-Bethany Other: SCADA	2008	2010	Unknown	Unknown	N/A
Cawelo	· · · · · · · · · · · · · · · · · · ·		Unknown	Unknown	All electrical units are
			UNKNOWN		controlled and monitored remotely.
Provident/Princeton	2005	2010	Unknown	Unknown	Began Installation of SCADA in 2005, looking to expand the coverage with completion in 2010.
Other: New Pumping Station					
Reclamation 108	2008	Ongoing	Unknown	Unknown	Combined 3 1950 vintage River Pumping Stations with a state of the art
			1		pumping station that will include new highly efficient pumps and motors.

Renewable Energy Activities:

	Begin	End	Est. kW	Est. kWh	Descriptions/Evaluation
Proposed Items	Date	Date	savings	savings	Methods
			per year	per year	
Solar thermal/photovoltaic p	rojects				
PWRPA	2008	2010	Unknown	Unknown	Under Review
Day lighting technologies		·			
Active solar installations			-		
Santa Clara Valley	2004	Ongoing	200	330,000	Quarterly
Biomass/refuse-derived fuel	s				
PWRPA	2008	2010	n/a	n/a	Under Review
Sonoma Valley					Researching use of bio- diesel for fleet vehicles and generators
Geothermal projects					
Small-scale hydro projects					
Arvin Edison	2007	2008	TBA	ТВА	Conducting a survey of low head generation possibilities
Santa Clara Valley	1988	Ongoing	460	525,000	Monthly
Sonoma Valley	2009	2010	Unknown	Unknown	New interconnection agreement with PG&E & PWRPA

Other: Wave Energy					
Sonoma Valley	2008/09	2015	n/a	n/a	Design study: Approval to reserve coastline. Obtain FERC permit. 2-5 MW system is being proposed
Other: Wind Energy					
Sonoma Valley	2008	2010	n/a	n/a	Prototype using (1) 2 kW turbine
Other: Methane		•			
Sonoma Valley	2008	2009	n/a	n/a	6 MW Generator
Other: Electric Vehicle					
Sonoma Valley	2008	Ongoing	n/a	n/a	Negotiate the purchase of electric vehicles in bulk for use by local public agencies. Try to obtain rebates or tax breaks for agencies.

Load Management Techniques:

Proposed Items	Begin Date	End Date	Est. kW savings per year	Est. kWh savings per year	Descriptions/Evaluation Methods
Load management devices					
Arvin Edison	2007	2008	Unknown	Unknown	Upgraded all meters to interval meters and upgrading near real-time load based monitoring system to be web based.
Sonoma Valley	2008	2010	n/a	n/a	Install motor protective relays for additional equipment protection to decrease down time.
PWRPA	2005	Ongoing	n/a	n/a	Use of SAMBA to schedule and view historical load demand
PWRPA	2008	Ongoing	n/a	n/a	Begin use of software from their MDMA, Trimark, called Thin Client to view metered demand.
Demand control techniques		ent			
Smart meters or automated					
Arvin Edison	2007	2008	n/a	n/a	Replaced all energy and all but 1old interval meter to new interval meters
PWRPA	Sept 2007	2008	0	0	PWRPA is the process of switching out energy meters to interval meters in all districts.
Time-of-use meters					
Westlands	Sept 2007	March 08	0	0	Upgraded to interval meters
Other: Manual lighting cont	rol				
Santa Clara Valley	June 2008	August 2008	n/a	n/a	This control is for summer months in office buildings

Rate Design Improvements:

PWRPA has implemented rate design improvements to encourage its participating members to conserve power by shifting load to off-peak times and use more energy-efficient techniques and methods. The rate design improvements include all delivered costs for power (i.e., California Independent Systems Operator fees, transmission and distribution, scheduling coordinator fees) and other fees directly assignable to power costs.

Cost reconciliation assures all customers face the hourly benefits and expense of load and forecasted load.

In 2005, a Meter Data Management system was established called SAMBA. In addition to tracking meter data, this database software also records and allocates all costs mentioned above to the member districts. PWRPA continues to upgrade SAMBA to meet their changing needs, including the upcoming scheduling of generators and integration into MRTU.

Agricultural Improvements:

	Begin	End	Est. kW	Est. kWh	Descriptions/Evaluation
Proposed Items	Date	Date	savings	savings	Methods
			per year	per year	
Irrigation pump utilization/sc					
Irrigation pump testing or eff		ovements			
Byron-Bethany	Ongoing	Ongoing	Unknown	5,500	
Cawelo	Annually	Ongoing	Unknown	500/Ea	Selected pump tested each year.
Glenn-Colusa	Every 3 Years	Open Ended	Unknown	Unknown	Preventative Maintenance
James	2007	2012	0	400,000	-
The West Side	2008	2008	n/a	n/a	
Reclamation 108	Ongoing	Ongoing	Unknown	Unknown	Performs regular pump efficiency tests
Electric motor replacement					
Byron-Bethany	Ongoing	Ongoing	Unknown	Unknown	Maintenance
Glenn-Colusa	As required	Open Ended	Unknown	Unknown	Preventative Maintenance
James	2007	2012	20	30,000	·
Photovoltaic pumping syster	ทร				
Ditch lining or piping					
Byron-Bethany					Ongoing
The West Side	2008	2013	n/a	n/a	
Reclamation 108	2008	Unknown	Unknown	Unknown	Calfed grant to add long- crested weirs to 30 miles of concrete lined canals to reduce system spill and reduce pumping
Laser land leveling					
Byron-Bethany	Ongoing	Ongoing	n/a	n/a	
Pumpback systems					
Water conservation program				<u> </u>	
Cawelo	May 2008	June 2008	0	0	Water savings due to infiltration reduction.

Glenn-Colusa	1992	Ongoing	200	620,500	Active Conversation Policy
James	2007	2012	50	50,000	
The West Side	2008	2013	n/a	n/a	
Reclamation 108	2008	Ongoing	2,000,000		Initiated a Pilot Water Conservation Program that reduces system drainage by 40,000 acre-feet.
Other:			,		

Environmental Effects:

(Provide a narrative statement that sets forth the efforts taken to minimize adverse environmental effects of new resource acquisitions)

PWRPA:

- Power Purchase from high efficiency natural gas power plant
- Preparation and implementation of a Renewable Portfolio Standard
- Started a solar initiative in 2008 to look for potential solar sites on district owned land.

District Specific:

- Cawelo: A feasibility study is to be preformed to identify treatment requirements to treat reclaimed oilfield produced water to use for irrigation purposes. Without use for irrigation, the oilfield produced waters would be injected in deep wells at high pressure to dispose of this water as a waste product. By researching how treatment method can clean the water to acceptable salt levels and reclaim the water for irrigation purposes, this will reduce energy use by the oil companies and provide an additional water resource for the agriculture community. At this time, Cawelo WD receives three different oilfield produced water sources which are used to irrigate crops within the District. The feasibility study is to work with lower quality waters than we have worked with in the past.
- **Glenn-Colusa** does not plan to acquire new resources and therefore no environmental action will occur.
- Provident/Princeton has consolidated three existing pumping plants on the Sacramento River into one new state of the art pumping plant with fish friendly fish screens.

Santa Clara Valley

- 1. Green Business program Certification: continuation efforts to refine the processes and gain efficiencies during next certification period.
- Sustainable Silicon Valley (SSV): Active involvement in SSV to gain knowledge and implement the latest technologies to achieve energy efficiencies and process improvements to reduce CO2 emissions.
- 3. California Climate Action Registry: Registered with California Climate Action Registry and reporting annually on the CO2 emissions and reductions.
- 4. Involved in PWRPA power purchase from high efficiency natural gas power plant, continue using renewable source (biogas) from Sonoma Water District, and PWRPA's buying of renewable credits.
- The West Side: Construction has begun on bird screens to keep swallows from nesting
 under the pump house. Research has begun on the construction of fish screens for the
 District pumps. A comprehensive sediment control program will be in place in 2008 with
 penalties enforced for violations.

Public Participation:

(Customers must provide ample opportunity for full public participation in preparing and developing an IRP. Provide a brief description of public involvement activities, including how information was gathered from the public, how public concerns were identified, how information was shared with the public, and how it responded to the public comments)

PWRPA: All member districts were provided independent input to and were then given copies of the IRP report and asked to respond to questions that were applicable to them.

The approval of the IRP is a noticed action for Public meetings.

District Specific:

- Glenn-Colusa published several newsletters yearly that inform the landowners and
 interested parties of current and planned activities of interest. The newsletters cover
 topics such as updates to construction projects such as the Main Pump Station
 Transformer Replacements, ground water test well installations, Water Forbearance
 Programs for water transfer options, legislative issues, power use projections, etc. The
 Board Meetings always have time allotted for Public Participation to discuss any issues
 the public may want to address.
- Santa Clara Valley: District's Water use efficiency unit staff constantly interacting with the public to educate and provide resources to reduce the water usage, this helps reduce the energy consumption for treatment and conveyance of water.

Future Energy Service Projections:

(Provide a load forecast to show expected growth or expansion; <u>or</u> a narrative statement concerning expected future growth)

Year	Peak Demand (kW)	Total Energy (kWh)
2009	99,000	423,623,400
2010	101,000	432,180,000
2011	103,000	441,000,000
2012	104,000	450,000,000
2013	106,000	459,183,673

Assumptions: Current estimates are assuming dry hydro-year conditions. Peak demands (kW) and energy (kWh) would likely be significantly less during average and wet hydro-year conditions.

or Narrative Statement:

PWPRA: is a Joint Power Authority serving 14 California Water purveyors from Willows in the Northern Sacramento Valley to the Bakersfield area in the Southern San Joaquin Valley. Annual energy use and peak demands are inversely related to California's rainfall and the type of hydropower production year. In addition, microclimates and hydrology differ greatly with the various Water Agencies throughout Western's Sierra Nevada Region. In a wet year, like 2006, power use is reduced due to lower power demands for water pumping. Conversely, in a dry year like 2007, demands are much higher. At this point, PWRPA is endeavoring to provide accurate forecasting for wet, normal and dry years, based on a model that uses the 78-year historical CVP water data.

Load growth of PWRPA and its participants is principally due to water source changes forced by regulatory actions and is generally not due to increased service demands.

District Specific:

- Arvin Edison: The District anticipates increasing its connected load slightly over the
 next three years, possibly by as much as 3MW, but the utilization of peak loads in
 aggregate areas not expected to increase proportionately. In other words, new facilities
 will be used often in lieu of other existing facilities rather than additively.
- Banta Carbona's demand is anticipated to stay flat for the next four years. No future growth is anticipated at this time.
- Glenn-Colusa's future energy projection increases are due to the increased operation
 of ground water wells to meet irrigation demands.
- Provident/Princeton anticipates that energy needs for the 2009-2012 time period will
 remain fairly constant in the 4,500,000 kWh energy range due to the fact that District
 acreage totals and cropping patterns will not change. Soil types in the Districts are such
 that only certain crops can be grown on the land. This being the case, water and energy
 usage will remain fairly constant.
- Santa Clara Valley's peak demand in this table is estimated sum of all the non-coincidental maximum peak demand in the respective years at each individual District facility. The forecasted peak demand includes 3,250 kW demand for Coyote Pumping Plant that may or may not occur based on the operational needs derived from the raw water contractual supply and demand.
- The West Side ID forecasts an annual increase of approximately 10% due to a slow growth measure for the City of Tracy, cropping pattern changes, and farm acreage increases due to improved farm commodity prices.
- West Stanislaus ID energy use is tied to weather patterns and environmental actions
 which governs our federal irrigation water supply. Decreases in federal irrigation water
 forces them to pump more river irrigation water.
- Westlands WD: Future energy requirements are dependent on water supplies. The
 District is routinely impacted by water shortages resulting from both climate and
 regulatory factors. Continued shortages will result in increased groundwater pumping
 which consumes more energy. The marked increase in energy use from 2006 to 2007
 illustrates this point.

Measurement Strategies:

(Provide a brief description of measurement strategies for options identified in the IRP to determine whether the IRP's objectives are being met. These validation methods must include identification of the baseline from which a customer will measure the benefits of its IRP implementation)

PWRPA:

- PWRPA determines and reports its power use by source to the California Energy Commission relative to its mix of carbon based and renewable resources.
- Monthly reports summarize load and schedules to assess efforts.
- Scheduling protocols through SAMBA allow districts to view compliance via scheduled and metered load.

District Specific:

Byron-Bethany has implemented an aggressive 10-Year capital improvement program.
Projects include Motor Control Center Upgrades, canal lining, pipeline replacement,
pump rehabilitation/replacement, automated level control structures and SCADA
expansion.

- Cawelo monitors each pumping unit and keeps record to compare to past performance. High efficiencies are maintained on a per pump and on a pump station basis.
- Glenn-Colusa maintains a daily flow database that is used to record flows in the main canal, laterals, drain recapture pumping and drain out-flow leaving the district boundary. This data is used to produce the annual water measurement report (WMR). The district has published the annual WMR every year since 1964. The WMR from previous similar water year types establishes the baseline to be used to validate whether the IRP's objectives are being met.
- Santa Clara Valley: Monthly tracking of the energy usage and demand DAS system for the solar generation and Future Power Monitoring program to use as a measurement strategy.
- The West Side ID will use a newly refurbished pump house (at a cost of \$1.6 million) and improved recapture and conservation measures to meet future needs.
- **Westlands:** The District annually calculates irrigation efficiency for the crops grown. Beginning in 2008 the District will be collecting energy profiling data for each load. The information will be made available to water users via the District website.

Other Information:

(Provide/attach additional information if necessary)